



GSLV-F14/INSAT-3DS Mission

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Why in News?

The [Indian Space and Research Organisation \(ISRO\)](#) is all set to launch its **GSLV-F14/INSAT-3DS mission** on 17th February 2024, with the aim of enhancing weather forecasting and disaster warning capabilities.

What are the Key Highlights of the GSLV-F14/INSAT-3DS Mission?

- INSAT-3DS will be launched aboard the [Geosynchronous Satellite Launch Vehicle F14 \(GSLV F14\)](#).
 - GSLV-F14 is a **three-stage launch vehicle**.
 - The first stage (GS1) has a solid propellant motor and four **earth-storable propellant stages (EPS)**.
 - EPS includes a supporting structure, propellant tanks, and an engine.
 - The second stage (GS2) is also an earth-storable propellant stage
 - The third stage (GS3) is a **cryogenic stage**, with propellant loading of liquid oxygen (LOX) and liquid hydrogen (LH2).
 - The GSLV-F14 is the 16th flight of the GSLV, and the 10th flight with the indigenous cryo stage.
 - INSAT-3DS comprises **four payloads**, including an Imager, a sounder, a data relay transponder, and a satellite-aided search and rescue transponder.
 - **Imager Payload:**
 - INSAT-3DS carries a multi-spectral Imager capable of generating **Earth images in six wavelength bands**.
 - **Sounder Payload:**
 - It features a 19-channel Sounder payload, offering data on atmospheric vertical profiles like temperature and humidity.
 - **Data Relay Transponder (DRT):**
 - INSAT-3DS through DRT receives global meteorological, hydrological, and oceanographic data from automatic weather stations and data collection platforms, relaying it back to user terminals.
 - **Satellite aided Search and Rescue (SA&SR) Transponder:**
 - INSAT-3DS through SA&SR relays distress signals for global search and rescue operations, covering the **Ultra high frequency band**.
 - INSAT-3DS is designed to **enhance meteorological observations**, aid in weather forecasting, and improve **disaster warning capabilities**.
 - Fully funded by the Ministry of Earth Sciences (MoES), it follows the lineage of **Third Generation Meteorological Satellites from Geostationary Orbit**.
 - The satellite will monitor land and ocean surfaces, augmenting the services provided by existing [INSAT-3D and INSAT-3DR satellites](#).
 - India gets weather updates through INSAT-3D & 3DR weather satellites. INSAT 3DR was launched in 2016 as a follow up on INSAT-3D which was launched in 2013.
 - It will significantly contribute to India's weather agencies, facilitating more accurate weather forecasts and better disaster management strategies.

- It will facilitate data collection and dissemination capabilities from the data collection platforms.
- INSAT-3DS will provide satellite-aided search and rescue services, enhancing emergency response capabilities.

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